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Production & Analyzing
DCI/IC-74-0341

26 March 1974

MEMORANDUM FOR: A/D/DCI/IC

SUBJECT : Development of a Community Analysis Model

1. Introduction

It is proposed to develop a Community Analysis Model as a means of investigating major trends of intelligence concern, understanding the causes of these trends, their interrelationships and implications, and from this understanding, assess resource impacts.

The primary objective of a Community Analysis Model is to provide a quantitative reflection of changing activities and needs in intelligence and, on a basis of these interrelationships, an estimate of the way in which they might change in the future. Such a Model would facilitate the development of policy and the formulation of program objectives, the structuring of broad-ranging R&D programs, and the improved allocation of community resources and manpower. The basic requirements of the Model would be to present a view of how world events might occur and to assess their impact on the intelligence community; to bound the rapidity with which events could occur, and establish the need for quick decisions (and policies) based on limited, incomplete information; to qualify the degree of interdependency among ongoing activities, and the feedback needed to make adjustments and shift priorities.

2. Application to Intelligence

The general objectives of a Community Analysis Model would be:

- To function in direct support of management resource and manpower policy decisions;
- To analyze changing community conditions for the purposes of problem analysis and program development;

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- To enhance the management of operations, and
- To provide a more effective system for NFIP management direction and control.

More specifically, the Community Analysis Model would enable a broad analysis of the following intelligence community variables:

A. World Perspectives through simulation of alternative world trends. Simulation results would be used to project "most likely" futures against which intelligence managers could devise and shape effective resource and planning postures. U. S. interests abroad would be defined through the World-Wide data bank.

B. National Foreign Intelligence Program Dynamics with respect to resource and manpower levels (and rates of increase or decrease) through analysis of future trends of intelligence programs. Such trends could be studied initially in terms of operational costs, technical costs and manpower costs. The results from Model simulations could assist in ensuring the development of a more cohesive intelligence community and improve definition of long-term policy objectives. Simulation results could be used also to assess the future requirements for resources and manpower within cross-program resource packages.

C. Production Dynamics through analysis of future trends in consumer needs, the quantity and quality of production, and the dynamics of collecting and processing of intelligence data. Model results would contribute to a better understanding, and quantification of production/processing/collection dynamics and thus assist in the development of more effective procedures for improving successive iterations of the cycle. Simulation results would aid in developing future postures for collection, processing and production of intelligence given a range of constraints i. e., manpower, dollars, operational environments, etc.

3. Proposal

A. Objective. To develop a Community Analysis Model to aid intelligence managers to plan future objectives and courses of action through an ICS funded contract effort. The Research and Analysis Branch/MPRRG would serve as contract monitor and focal

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point for the Model development. Other groups within the ICS would participate in the Model development as appropriate. The Model would be tentative and change as insights appear. Aggregation would be at a high level, so that variables could be refined and studied in greater detail. As the Model became more fully developed the results would allow for understanding of community dynamics and optimize community evolution.

B. Methodology. The Community Analysis Model would be developed using the systems dynamics methodology produced at M. I. T. which would allow one to model and simulate the actions of the intelligence community. The Model, a top-down approach, would allow for the investigation of several major future trends of community concern, including accelerating capital investment, rate of information growth, manpower needs and rate and utilization of intelligence production. The Model would serve as a tool for understanding the causes of trends in these variables, their interrelationships, and their implications as much as ten years into the future. Since M. I. T. methodology allows one to handle imperfect, incomplete data, as well as explicit time series information, the Model would include key variables not as independent variables, but as dynamically interacting elements. Because the variables in the Model are interrelated through feedback loops, the methodology allows one to change one or more of the variables and run simulations to see the effect after the change. The results would aid in identifying and understanding future trends and be useful for planning and policy interpretation by facilitating the design of growth/no growth inducing policy alternatives.

The systems dynamics methodology has the following advantages:

- Fast, simple and allows for rapid program changes;
- Presents future trends in graphic form;
- Projects ten-year trends of the dynamic changes of interrelated and interdependent key variables;
- Shows changes in future trends of one or more variables on a computer terminal and the effects of change on other variables. Provides analysis of numerous scenarios or future trends before management decisions are taken or policies are selected. Facilitates rapid policy update as new information is collected.

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- Identifies alternative actions. Provides for risk analysis and trade-off studies. Determines through simulation the most desirable of the available sets of outcomes and, hence, the preferred action.

<u>C. Costs for 12 Month Study</u>	<u>Dollars in Thousands</u>
3 Man Years (systems dynamics expertise)	75
Computer/Software/Terminal support	15
Rents and Services	5
Misc. support (travel, etc.)	<u>5</u>
Total	100

D. Milestones (see attached)

SIGNED

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D/MPRRG/IC

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Approved:

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-4-

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